



iUP-PC INTEL UNIVERSAL PROGRAMMER FOR THE PERSONAL COMPUTER

- Personal Computer Version of the iUP-200A/201A Universal Programmers
- Runs on an IBM PC/AT*, PC/XT* or True Compatible
- GUPI and FAST27K Personality Modules Provide Support for Numerous Device Families
- Utilizes the intelligent™ and Quick-Pulse Programming™ Algorithms
- Easily Upgradable for new Devices Through Low-Cost Plug-In Adapters
- Extremely Versatile—Programs Intel or Intel-Compatible EPROM, E2PROMs, EPLDs, Peripherals and Micro-Controllers, Including the Latest Intel EPLDs

The Intel Universal Programmer for the Personal Computer, iUP-PC, provides a high performance programming solution from a PC host. Through plug-in adapters for the Generic Universal Programmer Interface (iUP-GUPI), the iUP-PC supports all Intel EPLDs and most other Intel programmable devices. Upgrades for new devices are made by the simple addition of a GUPI adapter or the upgrade of an existing adapter.



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NOTE:
GUPI Adapter NOT included.

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FUNCTIONAL DESCRIPTION

The iUP-PC provides a fast, versatile and reliable programming solution from a Personal Computer host. Downloading to a stand-alone programmer or moving from one workstation to another is no longer required. With the iUP-PC, the designer may do his development and programming on one workstation. Through the Generic Universal Programmer Interface (iUP-GUPI), the iUP-PC is made extremely versatile. With the iUP-GUPI the designer may program across EPROM, E²PROM, Microcontroller, Peripheral and EPLD device categories with the mere change of a plug in adapter. No other hardware or software addition is needed. As all of the programming signals are generated at the GUPI base, extremely reliable waveforms reach the device.

COMPONENTS

The iUP-PC programming system consists of five components:

PCPP—The Personal Computer Personal Programmer (PCPP) is an IBM PC/XT form factor expansion card which fits into an IBM PC/XT, PC/AT or true compatible.

Interconnect Cable—A 50 lead ribbon cable connects the PCPP to the iUP-GUPI.

iUP-GUPI—The Intel Universal Programmer—Generic Universal Programmer Interface (iUP-GUPI) is

the programming base which holds the device adapters.

GUPI Adapters*—The GUPI Adapters plug-in to the iUP-GUPI base. They carry the sockets and hardware for a particular device family.

iPPS—The Intel PROM Programmer Software (iPPS) runs on a personal computer under DOS and controls the PCPP/host communication.

*NOTE:

Though the iUP-GUPI base is included in the iUP-PC package, the GUPI Adapters are NOT included. The desired adapters must be ordered separately.

PCPP CARD

The PCPP is an 8085-based co-processor board. Communication between the host and the PCPP may be controlled by the iPPS or LPS (Logic Programmer Software). Version 2.3 or greater of iPPS is required for running the iUP-PC on a personal computer. LPS is the programming software included in Intel's Programmable Logic Software II (iPLS II).

The PCPP is capable of driving the iUP-GUPI and FAST27/K modules. Future Intel EPLDs will be supported by an iUP-GUPI adapter or adapter upgrade.

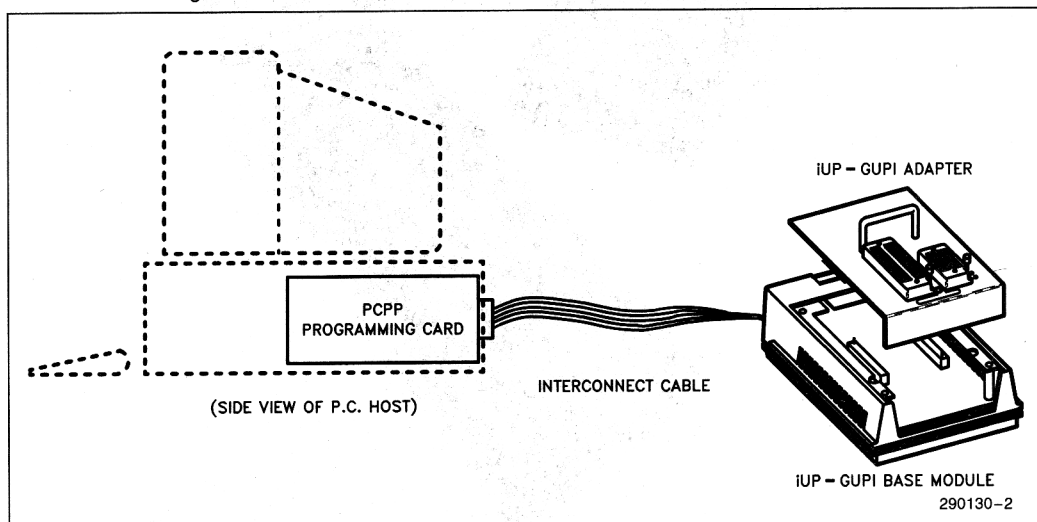


Figure 1. The Intel Universal Programmer for the Personal Computer (iUP-PC)

iUP-GUPI MODULE

The iUP-GUPI is a generic base module that enables the iUP-PC system to accept low-cost plug-in adapters. These adapters configure the system to support a wide variety of programmable devices—EPROMs, microcontrollers, and EPLDs—as well as device package types.

The iUP-GUPI module connects to the PCPP card via a ribbon cable. An opening in the top of the iUP-GUPI provides easy plug-in installation of the GUPI adapters (refer to Figure 2).

The iUP-GUPI offers the programming performance of earlier Intel personality modules, with the fastest Intel programming algorithms for each device type. For example, the iUP-GUPI uses the new Quick-Pulse Programming algorithm to program the 1-Meg EPROM in seconds.

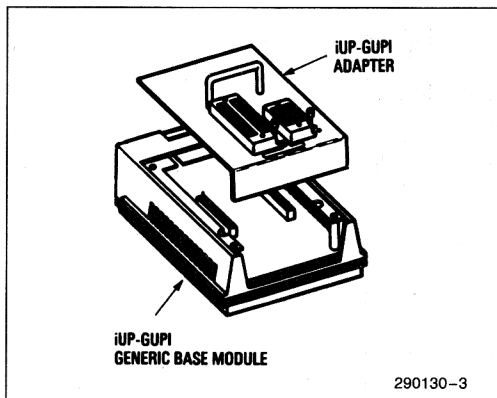


Figure 2. GUPI Adapter Installation

GUPI ADAPTERS

The iUP-GUPI adapters provide the final link of the iUP-PC programming system. The adapters provide the proper sockets and characteristic information for families of Intel devices.

The iUP-GUPI LOGIC adapters complete the programming solution of the Intel Programmable Logic Development System II (iPLDS II). The GUPI LOGIC adapters provide support for the entire range of Erasable Programmable Logic Devices (EPLDs). The adapters support families EPLDs with similar architecture, such as the 5C060 and 5C090. All future EPLDs will be supported by the GUPI LOGIC adapter system.

Intel's one megabit EPROMs are also supported with GUPI adapters. Adapters are available for the 27010, 27011, and 27210. The page mode of the 27011 is supported by the GUPI 27011 adapter. Other Intel EPROM support is provided with the FAST27/K personality module.

Intel's first flash memory products are supported by the GUPI FLASH Adapter.

The MCS-51 and MCS-96 microcontroller families are supported by the GUPI MSC-51 and GUPI 8796 adapters. Supplemental adapters provide support for the variety of microcontroller package types. The 8741 and 8742 peripheral components are supported by the GUPI 8742 adapter.

Table 1 displays a cross-reference of the EPLD GUPI adapters and the devices they support. Table 2 displays a cross-reference of the EPROM/Microcontroller adapters and the devices they support. Note that these tables are current at the time of printing. Contact your Intel sales representative for information on current support.

Table 1. EPLD GUPI Module Adapters

Device Type	GUPI Logic-IID	GUPI Logic-12	GUPI 40D44J	GUPI Logic-18	GUPI Logic-18PGA	GUPI 85EPLD28	GUPI Logic-BIC
EPLD	5C060 5C090 5AC312	5C031 5C032 5C121	 5AC324	5C180	5C180G	85C508	5CBIC
Package Types	DIP*	DIP	DIP PLCC	PLCC CJ	PGA	DIP PLCC	PLCC

*ADAPT units available to adapt DIP socket for PLCC package.

Table 2. EPROM/Microcontroller GUPI Module Adapters

Device Type	GUPI 27010	GUPI 27011	GUPI 27210	GUPI FLASH	GUPI 8742	GUPI MCS-51	GUPI 8796	GUPI 8796LCC	GUPI 87C51GB	GUPI MCS-96LCC
EPROM	27010	27011	27210							
Flash				27F64 27F256 28F256						
Peripheral Microcontroller					8741AH 8742AH	8751H 87C51 8752BH 87C51FA 87C51FB	8794BH 8795BH 8796BH 8797BH	8796BH 8797BH	87C51GB	8797BH 87C196KB
Package Types	DIP	DIP	DIP	DIP	DIP	PLCC DIP	PGA DIP	LOC	PLCC	PLCC

The iUP-Fast 27/K Personality Module

With the iUP-Fast 27/K personality module the user can program, read, and verify the contents of Intel's high density EPROMs, from the page-programmable (512K) 27513, to the CMOS 27C64, 27C256, and 87C64 EPROMs. This personality module supports the intelligent Programming algorithms and the intelligent Identifier™. The intelligent Identifier lets the personality module interrogate the PROM device in the program/master socket. It determines whether the type selected matches the type of PROM device installed and then selects the proper intelligent Programming algorithm. The intelligent Programming algorithms reduce programming time up to a factor of 10.

Low cost, plug-in upgrade kits allow addition of support for Intel's latest EPROMs. The first upgrade kit added support for the 27512 and innovative page-programmable 27513 plus the 27128A and 2817A. It has now been replaced by a second upgrade kit, iUP-Fast 27/K-U2 adding support for Intel's new CMOS EPROMs. (refer to Table 3).

As shown in Figure 3 the iUP-Fast 27/K personality module contains two 28-pin sockets, a hexadecimal display (0 through F), and a red LED that indicates when power is being applied to a socket. The program socket holds the device being programmed. The master socket will be used in future upgrades.

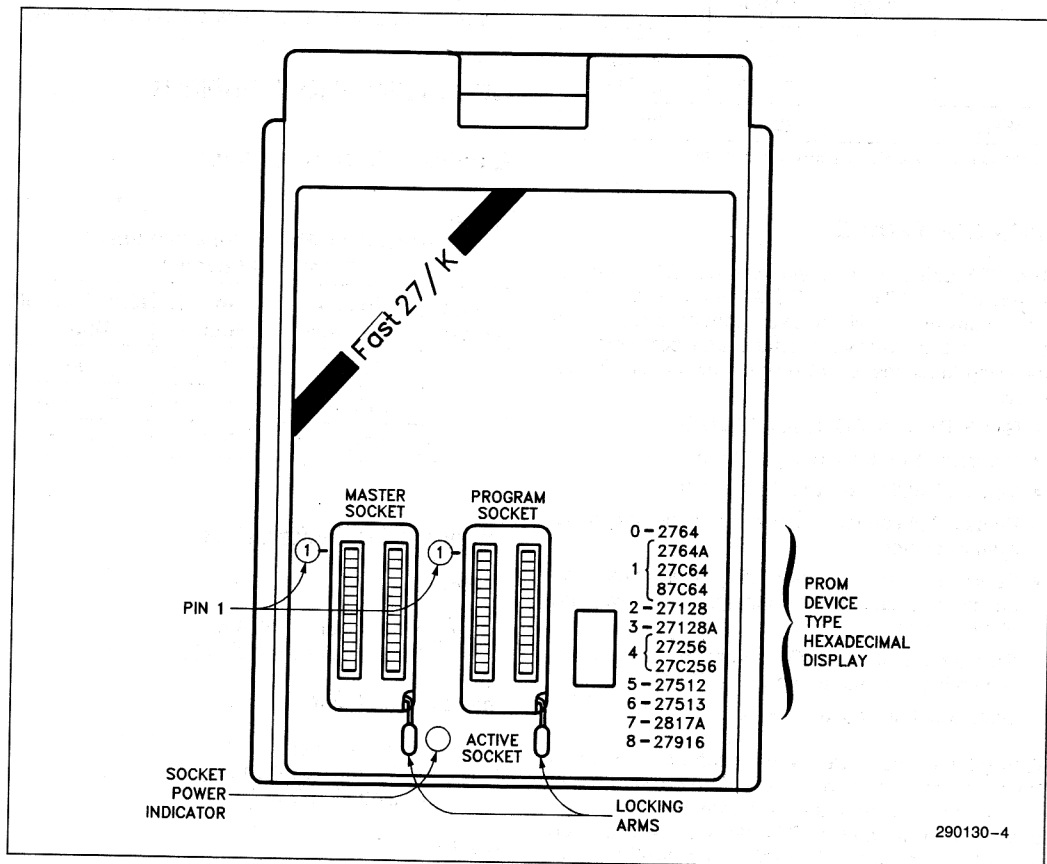


Figure 3. iUP-Fast 27/K Personality Module with U2 Upgrade

The hexadecimal display shows the PROM device type selected.

Table 3. FAST27/K Module Device Support

Prom Type	Fast 27/K Module	Fast 27/K U2 Kit	Fast 27/K-CON* Kit
EPROM	2764	2764	2764
	2764A	2764A	2764A
		27C64	27C64
		87C64	87C64
	27128	27128	27128
		27128A	27128A
	27256	27256	27256
		27C256	27C256
		27512	27512
		27513	27513
E ² PROM		2817A	2817A

*Uses Quick-Pulse Programming Algorithm.

IPPS SOFTWARE

The iPPS software, included with the iUP-PC brings increased flexibility to PROM programming. The iPPS software provides user control through an easy-to-use interactive interface and performs the following functions to make programming quick and easy:

- Reads PROMs, ROMs and EPLDs.
- Programs PROMs directly or from a file.
- Verifies PROM data with buffer data.
- Prints PROM buffer, or device file contents on the system printer.
- Performs interactive formatting operations such as interleaving, nibble swapping, bit reversal, and block moves.
- Programs multiple PROMs from the source file, prompting the user to insert new PROMs.
- Uses a buffer to change PROM contents.

With the iPPS software the user can load programs from system memory or directly from a disk file. Access to the disk lets the user create and manipulate data in a virtual buffer. This block of data can be formatted into different PROM word sizes for program storage into several different PROM types. In addition, a program stored in the target PROM, the system memory, or a system disk file can be interleaved with a second program and entered into a specific target PROM or PROMs.

The iPPS software supports data manipulation in the following Intel formats: 8080 hexadecimal ASCII, 8080 absolute object, 8086 hexadecimal ASCII, 8086 absolute object, 80286 absolute object, and 80386 bootloadable object. Addresses and data can be displayed in binary, octal, decimal, or hexadecimal. The user can easily change default data formats as well as number bases.

iUP-PC SPECIFICATIONS

HOST SYSTEM

The iPPS will run on an IBM PC/XT, PC/AT or other true compatible with a DOS operating system. The PCPP requires one full-sized card slot inside the PC.

OPERATING ENVIRONMENT

Electrical Characteristics

PCPP:

**Worst Case Power Consumption at
IBM PC I/O Channel**

Supply Voltage	Voltage Variance	Personality Module	Max. Current Drain
+5V	+5%, -4%	FAST27K	1.898 A
-12V	+10%, -9%	FAST27K	102.9 mA
+12V	+5%, -4%	GUPI	530 mA

Physical Characteristics

PCPP:

Length: 13.3 inches (33.9 cm)
Height: 3.9 inches (10.0 cm)

Interconnect Cable:

50 lead ribbon cable
Length: 3.0 feet (91.4 cm)
Width: 2.43 inches (5.5 cm)

iUP-GUPI:

Length: 7.0 inches (17.8 cm)
Width: 5.5 inches (1.4 cm)
Height: 1.6 inches (4.1 cm)

Environmental Characteristics

Environmental Class: B

Temperature:

Operating 10 to 40 degrees C
Non-Operating -40 to 70 degrees C

Relative Humidity:

Operating 85% Maximum
Non-Operating 95% Maximum

DOCUMENTATION

168161—PCPP User's Guide

166428—iUP-GUPI Module User's Guide

User's Guides for Adaptors, FAST 27/K Modules, and upgrades included with respective units.

ORDERING INFORMATION

Order Code

Product Description

iUPPC

Universal Programmer for the Personal Computer: PCPP Programming Card, 50-Lead Interconnect Cable, iUP-GUPI, IPPS, PCPP User's Guide

ADAPT24TO28	28-Pin PLCC Socket Adapter for GUPI LOGIC-IID
ADAPT40TO44	44-Pin PLCC Socket Adapter for GUPI LOGIC-IID
piUPGUPI	Generic Universal Programmer Interface (Base)
GUPI LOGICIID	GUPI Logic Adapter
GUPI40D44J	GUPI Logic Adapter
GUPI85EPLD28	GUPI Logic Adapter
GUPI LOGIC12	GUPI Logic Adapter
GUPI LOGIC18	GUPI Logic Adapter
GUPI LOGIC18PGA	GUPI Logic Adapter for 5C180 PGA
GUPI LOGICBIC	GUPI Logic Adapter
GUPI27010	iUP-GUPI EPROM Adapter
GUPI27011	iUP-GUPI EPROM Adapter
GUPI27210	iUP-GUPI EPROM Adapter
GUPI8742	iUP-GUPI Peripheral Adapter
GUPIMCS51	iUP-GUPI Microcontroller Adapter
GUPI87C51GB	iUP-GUPI Microcontroller Adapter
GUPI8796	iUP-GUPI Microcontroller Adapter
GUPI8796LCC	iUP-GUPI Microcontroller Adapter
piUPFAST 27K	EPROM Personality Module
iUPFAST 27KU2	FAST 27/K Upgrade Kit
iUPFAST 27KCON	Adds Quick-Pulse algorithm and device support
iUPFAST 27KIT	Combines piUPFAST 27K and iUPFAST 27KU2